

What is claimed is:

1. An engine stop and start control system for a vehicle, wherein the vehicle comprises:

5 an engine as a power source for driving the vehicle;

a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

a mechanical oil pump, operated by the power produced by the engine, for supplying oil pressure to the transmission via an oil pressure supply section, and

10 the control system comprises:

an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine under predetermined starting conditions; and

15 an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission,

wherein the automatic engine stopping and starting section has a control section for prohibiting the automatic engine stop when a line pressure, which is the oil pressure in the oil pressure supply section, is equal to or lower than a predetermined value while the engine is operated.

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2. An engine stop and start control system as claimed in claim 1, wherein the predetermined value is determined depending on the number of rotations of an output shaft of the engine.

25 3. An engine stop and start control system as claimed in claim 1, wherein the

control section prohibits the automatic engine stop when the state in which the line pressure is equal to or lower than the predetermined value has continued for a predetermined time.

5     4.         An engine stop and start control system for a vehicle, wherein the vehicle comprises:

              an engine as a power source for driving the vehicle;

              a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

10             a mechanical oil pump, operated by the power produced by the engine, for supplying oil pressure to the transmission, and

              the control system comprises:

              an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine

15             under predetermined starting conditions; and

              an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission via an oil pressure supply section,

              wherein the automatic engine stopping and starting section has a control section  
20             for restarting the engine when a line pressure, which is the oil pressure in the oil pressure supply section, is equal to or lower than a predetermined value while the engine is automatically stopped.

5.             An engine stop and start control system as claimed in claim 4, wherein the  
25             control section restarts the engine when the state in which the line pressure is equal to or

lower than the predetermined value has continued for a predetermined time.

6. An engine stop and start control system for a vehicle, wherein the vehicle comprises:

5 an engine as a power source for driving the vehicle;

a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

a mechanical oil pump, operated by the power produced by the engine, for supplying oil pressure to the transmission, and

10 the control system comprises:

an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine under predetermined starting conditions; and

an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission,

wherein the automatic engine stopping and starting section has a control section for restarting the engine when a value of current flowing through a driving motor for driving the electric oil pump is out of a predetermined range while the engine is automatically stopped.

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7. An engine stop and start control system as claimed in claim 6, wherein the control section restarts the engine when the state in which the value of current is out of the predetermined range has continued for a predetermined time.

25 8. An engine stop and start control system for a vehicle, wherein the vehicle

comprises:

an engine as a power source for driving the vehicle;

a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

5 a mechanical oil pump, operated by the power produced by the engine, for supplying oil pressure to the transmission, and

the control system comprises:

an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine

10 under predetermined starting conditions; and

an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission via an oil pressure supply section, where one of a driving voltage and a duty ratio in pulse width modulation of a driving motor for driving the electric oil pump is controlled in a manner such that one of  
15 a line pressure, which is the oil pressure in the oil pressure supply section, and a value of current flowing through the driving motor coincides with a predetermined command value,

wherein the automatic engine stopping and starting section has a control section for restarting the engine when one of the driving voltage and the duty ratio is equal to or  
20 greater than a predetermined value while the engine is automatically stopped.

9. An engine stop and start control system as claimed in claim 8, wherein the control section restarts the engine when the state in which one of the driving voltage and the duty ratio is equal to or greater than the predetermined value has continued for a  
25 predetermined time.

10. An engine stop and start control system for a vehicle, wherein the vehicle comprises:

an engine as a power source for driving the vehicle;

5 a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

a mechanical oil pump, operated by the power produced by the engine, for supplying oil pressure to the transmission, and

the control system comprises:

10 an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine under predetermined starting conditions; and

an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission,

15 wherein the automatic engine stopping and starting section has a control section for restarting the engine when a temperature of hydraulic oil supplied to the transmission is equal to or higher than a predetermined value while the engine is automatically stopped.

20 11. An engine stop and start control system for a vehicle, wherein the vehicle comprises:

an engine as a power source for driving the vehicle;

a transmission for transmitting power produced by the engine to an output shaft of the vehicle; and

25 a mechanical oil pump, operated by the power produced by the engine, for

supplying oil pressure to the transmission, and

the control system comprises:

an automatic engine stopping and starting section for automatically stopping the engine under predetermined stopping conditions and automatically starting the engine

5 under predetermined starting conditions; and

an electric oil pump operated when the predetermined stopping conditions are satisfied, so as to supply the oil pressure to the transmission,

wherein the automatic engine stopping and starting section has a control section for prohibiting the automatic engine stop when a slip ratio of a clutch for a gear for

10 starting the vehicle in the transmission exceeds a predetermined range in a predetermined time after the engine is restarted from the state in which the engine is automatically stopped.

12. An engine stop and start control system as claimed in any one of claims 1, 4, 6,  
15 8, 10, and 11, wherein:

the vehicle is a hybrid vehicle which further comprises an electric motor as a power source for driving the vehicle; and

the mechanical oil pump is operated by at least one of the power produced by the engine and power produced by the electric motor.